

# Course Material

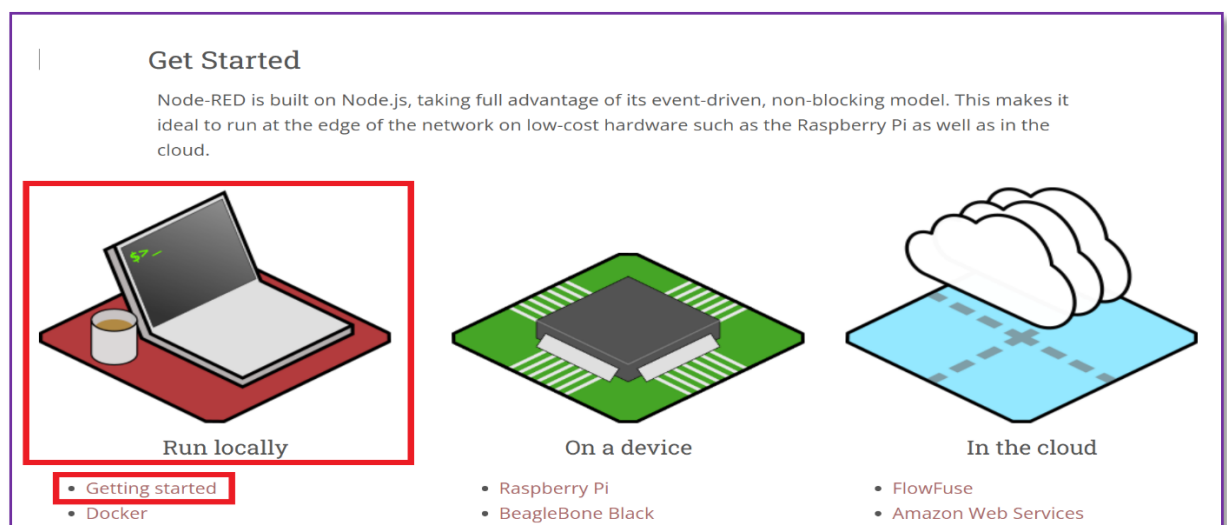
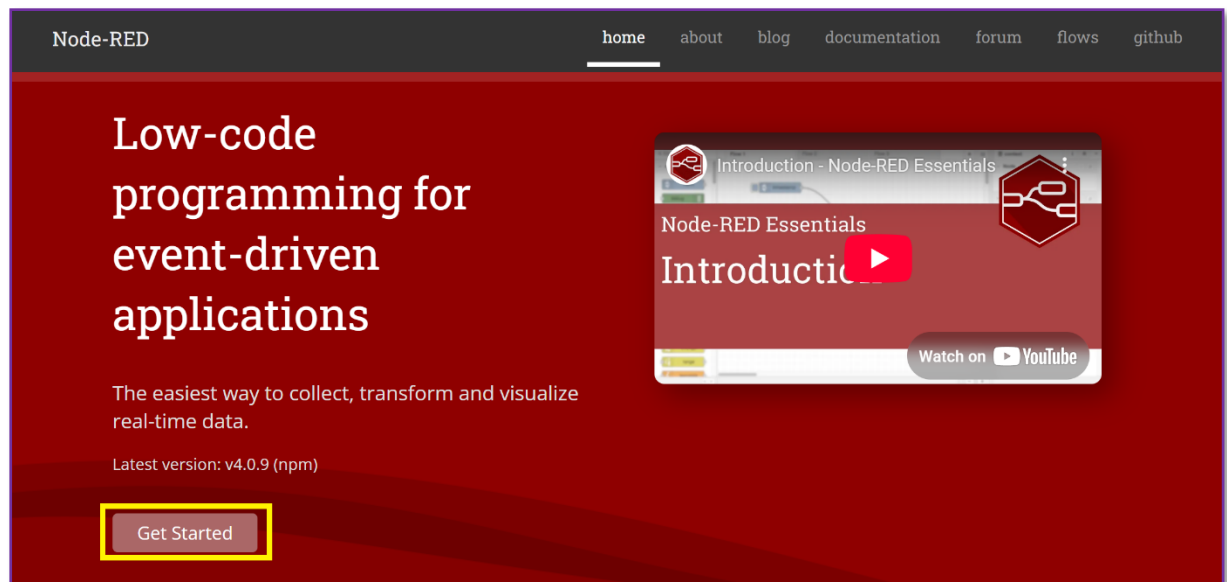
## Node-RED

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### Installation

1. Go to <https://nodered.org/>
2. Click on "Get Started → Run locally → Getting started → Running locally".




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## Getting Started

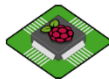
This guide will help you get Node-RED installed and running in just a few minutes.

Pick where you want to run Node-RED, whether on your local computer, a device such as a Raspberry Pi or in the cloud and follow the guides below.




### Running locally

Installing Node-RED on your local computer



### Raspberry Pi

Get started using our all-in-one install script for the mighty Raspberry Pi



### Docker

Running Node-RED using Docker

- For Windows installation, click on the highlighted link and follow the steps to install Node.js.


<https://nodered.org/docs/getting-started/windows>

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## Running Node-RED locally


Prerequisites
Installing with npm
Installing with docker
Installing with snap
Running
Command-line Usage
Override individual settings
Passing arguments to the underlying Node.js process
Upgrading Node-RED
Next steps



If you are on a Raspberry Pi or any Debian-based operating system, including Ubuntu and Diet-Pi, you can use the Pi install script available [here](#).



If you are on an RPM-based operating system, including RedHat, Fedora and CentOS, you can use the RPM install script available [here](#).



If you are using Windows, detailed instructions for installing Node-RED can be found [here](#).

### Prerequisites

To install Node-RED locally you will need a [supported version of Node.js](#).

## Quick Start

### 1. Install Node.js

Download the latest LTS version of Node.js from the official [Node.js home page](#). It will offer you the best version for your system.

Run the downloaded MSI file. Installing Node.js requires local administrator rights; if you are not a local administrator, you will be prompted for an administrator password on install. Accept the defaults when installing. After installation completes, close any open command prompts and re-open to ensure new environment variables are picked up.

Once installed, open a command prompt and run the following command to ensure Node.js and npm are installed correctly.

Using Powershell: `node --version; npm --version`

Using cmd: `node --version && npm --version`

You should receive back output that looks similar to:

```
v18.15.0
9.5.0
```

### 2. Install Node-RED

Installing Node-RED as a global module adds the command `node-red` to your system path. Execute the following at the command prompt:

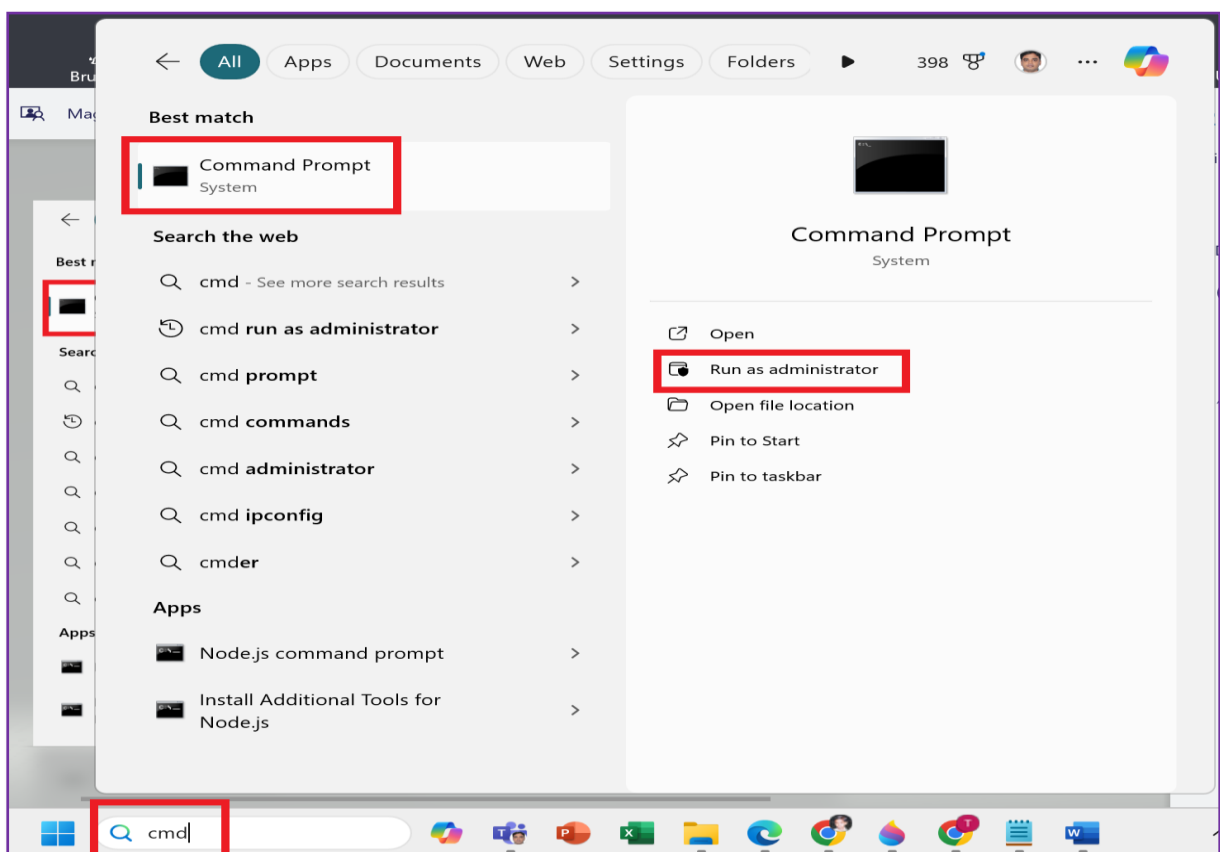
```
npm install -g --unsafe-perm node-red
```

### 3. Run Node-RED

Once installed, you are ready to [run Node-RED](#).

## Node-RED – User Guide

1. Open the Command Prompt on your PC by typing “**cmd**” in the search bar and selecting “**Run as administrator**”. Inside the Command Prompt, type “**node-red**” and press **Enter** to run Node.js.



```
C:\> Administrator: Command Prompt

Microsoft Windows [Version 10.0.26100.3476]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>node-red_
```

```
C:\> node-red
Microsoft Windows [Version 10.0.26100.3476]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>node-red
19 Mar 12:12:07 - [info]

Welcome to Node-RED
=====

19 Mar 12:12:07 - [info] Node-RED version: v4.0.9
19 Mar 12:12:07 - [info] Node.js version: v22.14.0
19 Mar 12:12:07 - [info] Windows_NT 10.0.26100 x64 LE
19 Mar 12:12:19 - [info] Loading palette nodes
19 Mar 12:12:31 - [info] Dashboard version 3.6.5 started at /ui
(node:17712) [DEP0044] DeprecationWarning: The `util.isArray` API is deprecated. Please use `Array.isArray()` instead.
(Use `node --trace-deprecation ...` to show where the warning was created)
Unhandled rejection Error: ENOENT: no such file or directory, open 'C:\02.png'

19 Mar 12:12:35 - [info] Settings file : C:\Users\Thiyagarajan\.node-red\settings.js
19 Mar 12:12:35 - [info] Context store : 'default' [module=memory]
19 Mar 12:12:35 - [info] User directory : \Users\Thiyagarajan\.node-red
19 Mar 12:12:35 - [warn] Projects disabled : editorTheme.projects.enabled=false
19 Mar 12:12:35 - [info] Flows file : \Users\Thiyagarajan\.node-red\flows.json
19 Mar 12:12:35 - [warn]

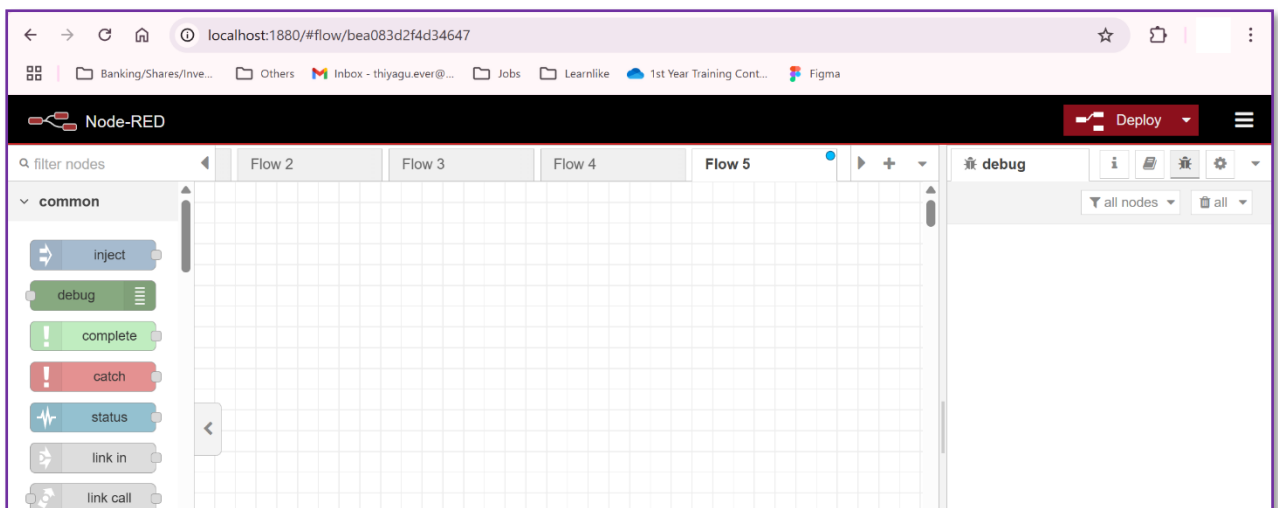
-----
Your flow credentials file is encrypted using a system-generated key.

If the system-generated key is lost for any reason, your credentials
file will not be recoverable, you will have to delete it and re-enter
your credentials.

You should set your own key using the 'credentialSecret' option in
your settings file. Node-RED will then re-encrypt your credentials
file using your chosen key the next time you deploy a change.
-----

19 Mar 12:12:35 - [info] Server now running at http://127.0.0.1:1880/
19 Mar 12:12:35 - [info] Starting flows
19 Mar 12:12:35 - [info] Started flows
```

2. After initializing Node-RED, open any browser and enter <http://localhost:1880> in the address bar to launch Node-RED in the browser.

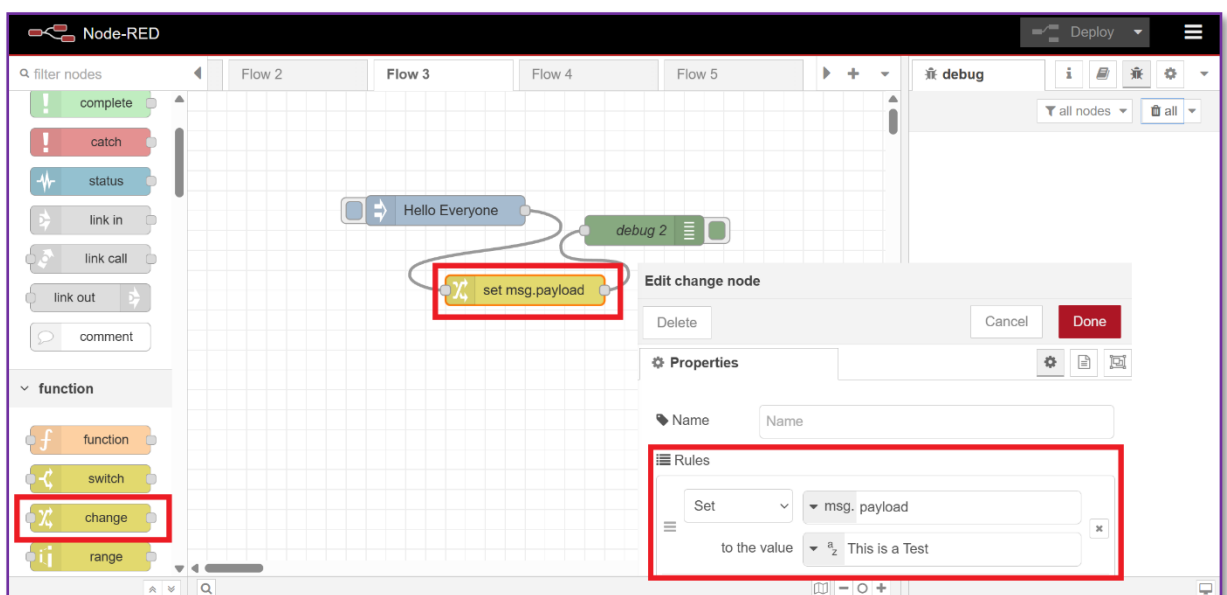


- Follow this Node-RED YouTube tutorial to create your first flow and understand its functionality.

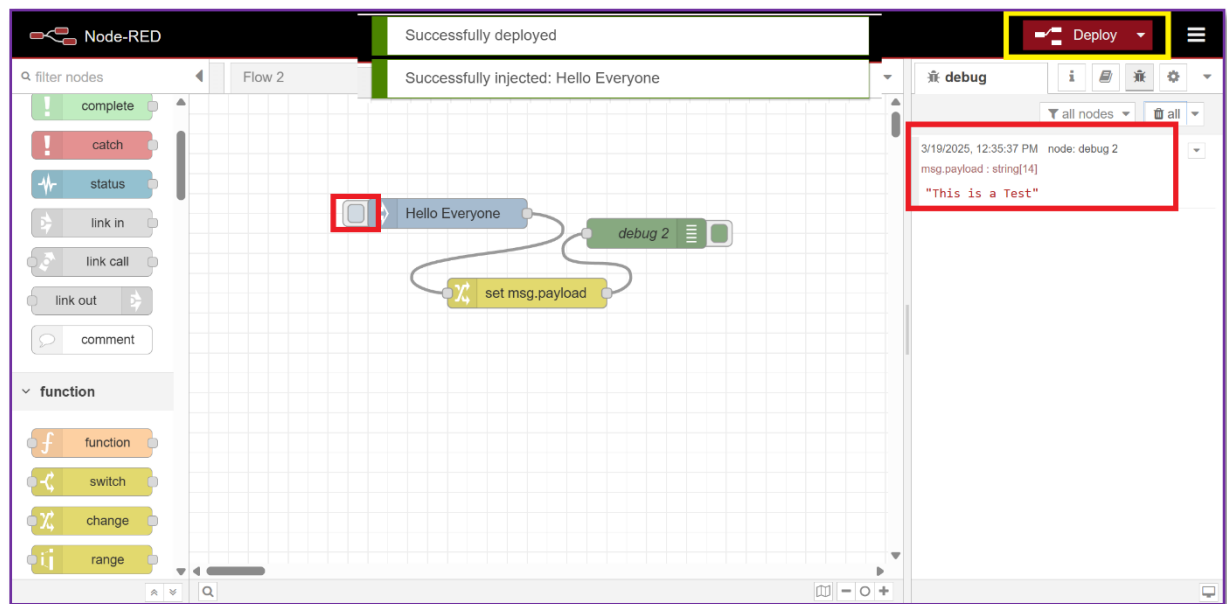


**Note:** Always keep the command prompt open to run Node.js. If closed Node-RED will stop working.

- Scroll down and add the “change” function to modify the **msg.payload** input to a new value.

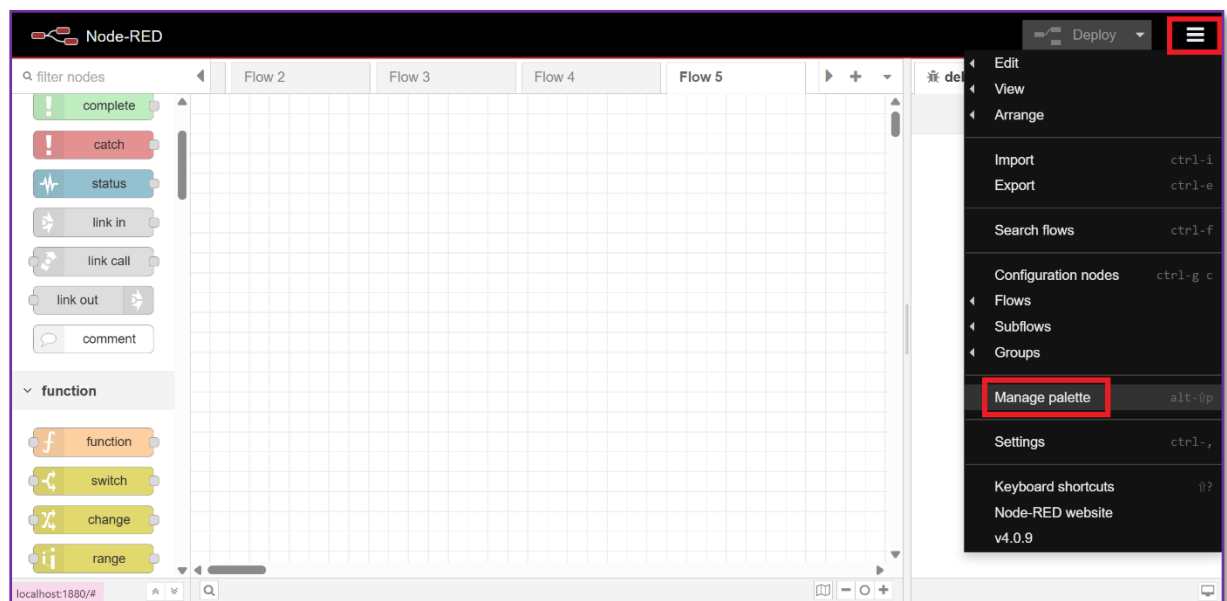


- Click on “**Deploy**”, then click on “**Inject**” to see the changes in action.

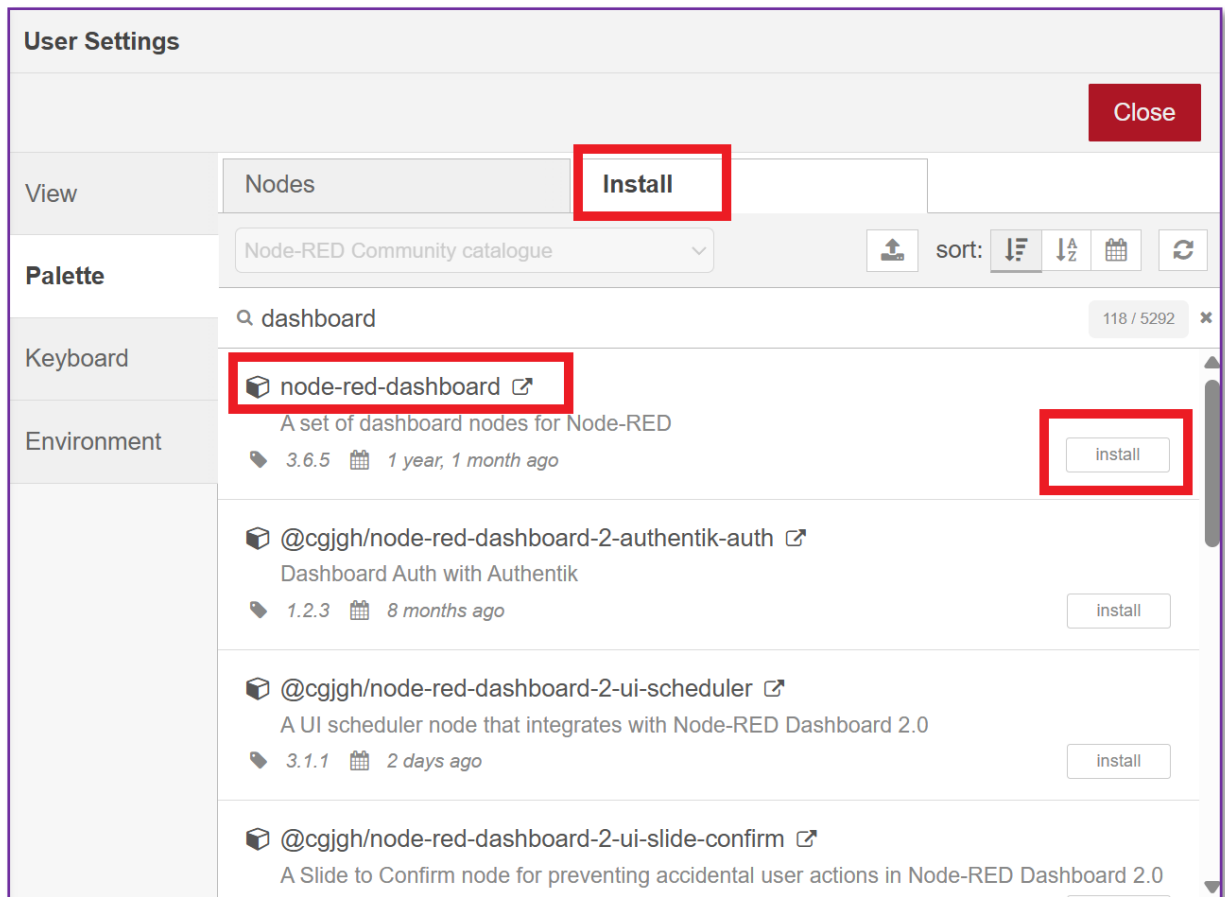


## Node-RED – Dashboard

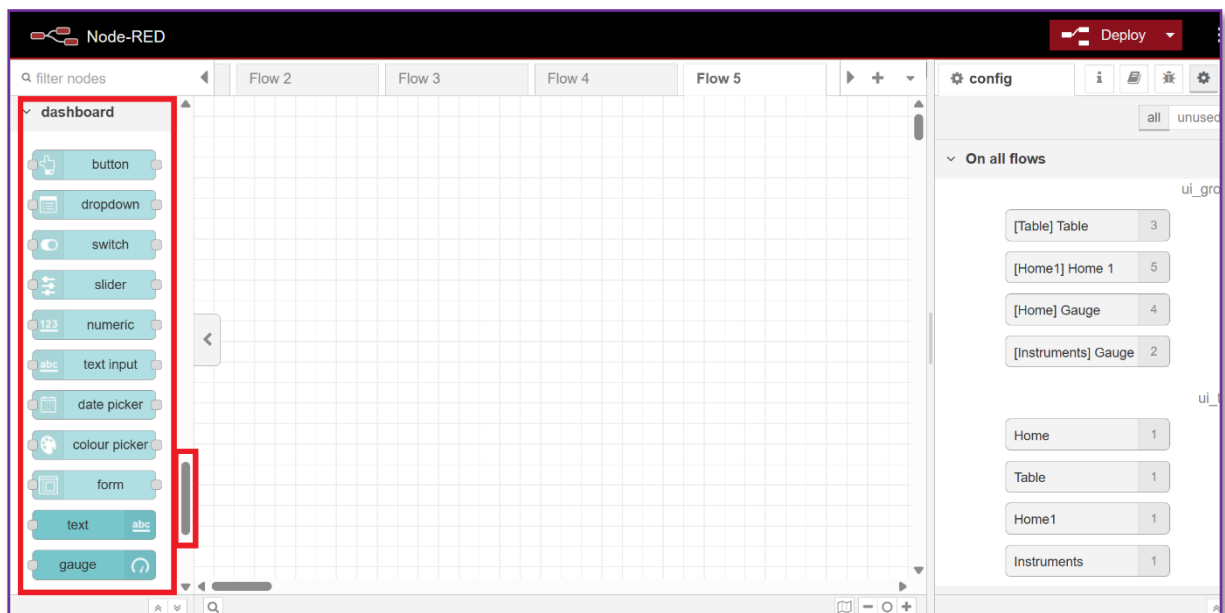
- Click on the **Hamburger menu** (≡) in the top right corner and select **Manage palette**.



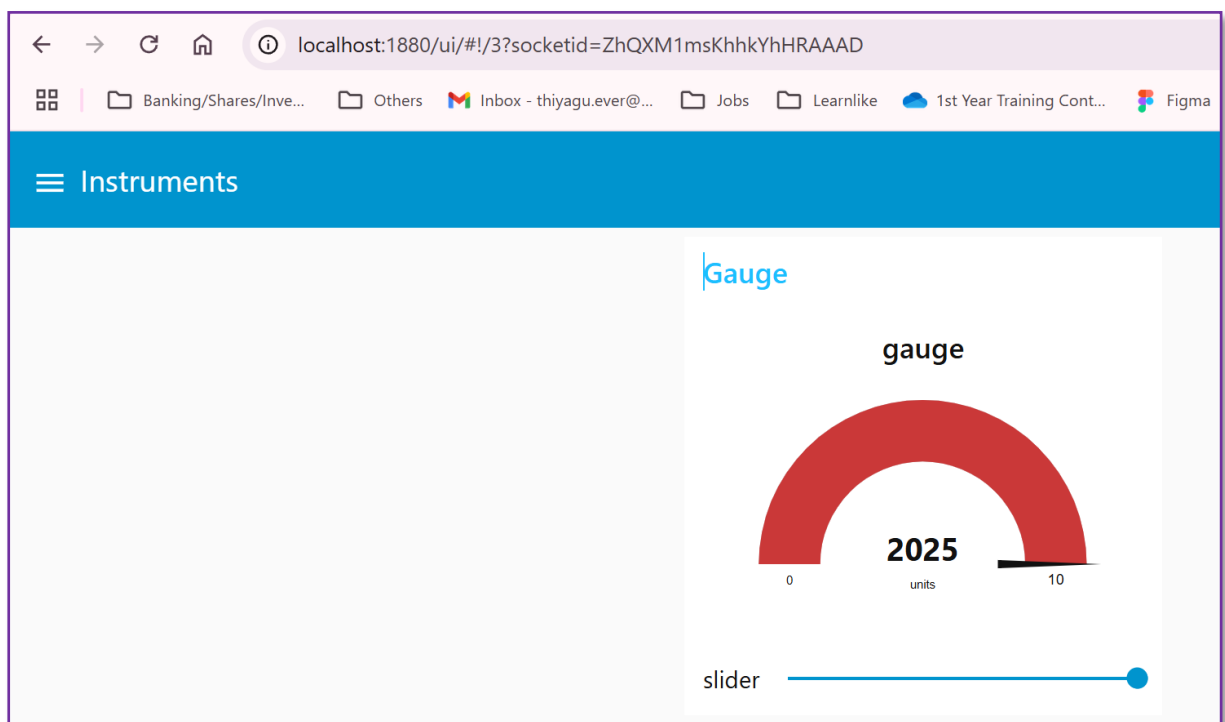
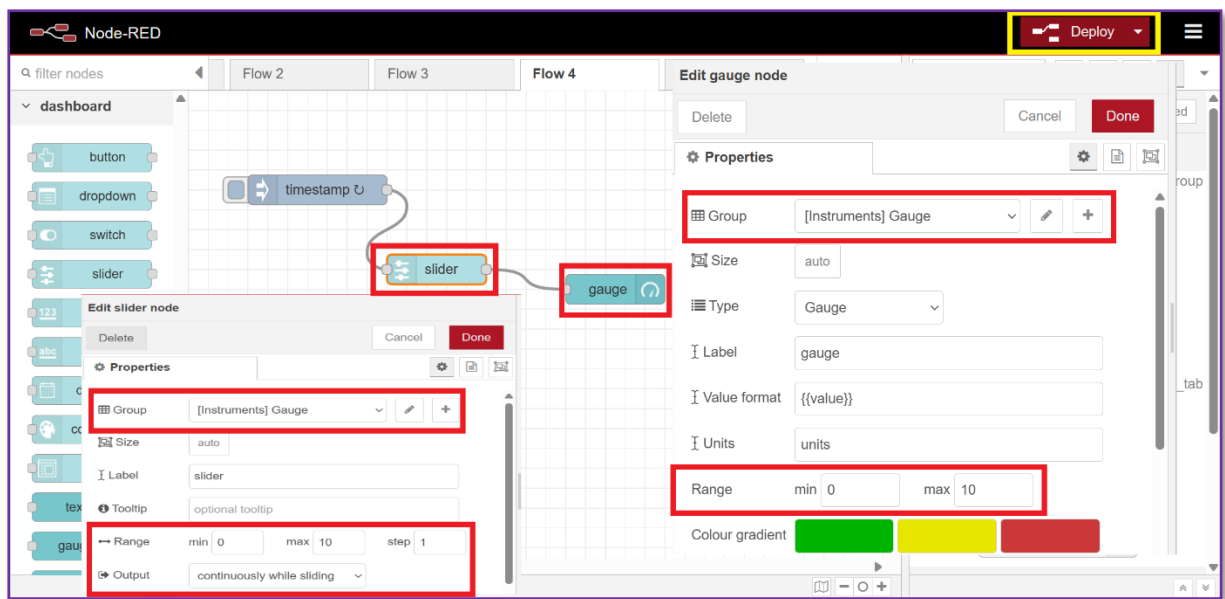
- Go to the “**Install**” tab, search for **dashboard**, select “**node-red-dashboard**”, and click “**Install**” to add the node.



3. Scroll down the left navigation menu to view the dashboard nodes that have been added to your Node-RED workspace, allowing you to create UI components for your flows.



4. Follow this simple dashboard setup to connect a slider with a gauge. To access the UI in your browser, type <http://localhost:1880/ui>.



5. Visit the **Node-RED Tutorials** YouTube channel page for step-by-step guides.  
<https://www.youtube.com/playlist?list=PLyNBB9VCLmo1hyO-4fIZ08gqFcXBkHy-6>
6. You can access the **Node-RED User Guide** at the official website:  
[Node-RED User Guide](#)  
 This guide covers installation, flow creation, nodes, dashboards, and advanced features.